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SHORT COMMUNICATION

ABOUT THE SYMMETRY OF THE PENTAGONAL BASIC BIOPOLYMER UNITS OF THE POLLEN WALL

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By direct and indirect methods, several concepts were published about the biopolymer structure and organization of the sporoderm, e.g.: Globular units (KEDVES et al. 1974), helical sub-units (ROWLEY et al. 1980, 1981). Irregular polygons forming a lattice pattern were described by SOUTHWORTH (1985, 1986). The pseudo-crystalline organization of the sporoderm was presumed by ROWLEY and SOUTHWORTH (1967). The molecular sieve character of the sporoderm was established by ROWLEY (1973). In our investigations pentagonal polygon units of the spore-pollen wall were observed. A regular, quasi-crystalline organization was supposed in the latest paper by the author (KEDVES, 1988a,b). Following the advice of Prof. Dr. J. KOVÁCS (Dept. of Zoology, E.L. University, Budapest), the Markham rotation method was used in the study of the symmetry of the pentagonal biopolymer units of the exine of *Pinus griffithii* MC.CLELL As a first attempt the photo paper was turned five times by 72° for the angles of the pentagonal polygon. The result (Fig. 4) was very surprising and on the other hand gave new verification to the quasi crystalline basic biopolymer structure of the sporoderm. The detailed description and the perspectives and further result in this field are the subject of another paper.

Plate 1.

Pinus griffithii MC.CLELL partially degraded exine of the pollen grain (experiment, No 79: 20 mg air dried pollen grains + 1 ml 2-aminoethanol, temperature 30°C, lenght of time 24^h + 10 ml KMnO4 aq. dil., temperature 30°C, lenght of time 24^h. Fig. 1—3 — TEM pictures without rotation; 1. x200000, 2.x500000. 3.x1250000. Fig. 4. TEM picture prepared with the Markham rotation method; five times, x1250000.

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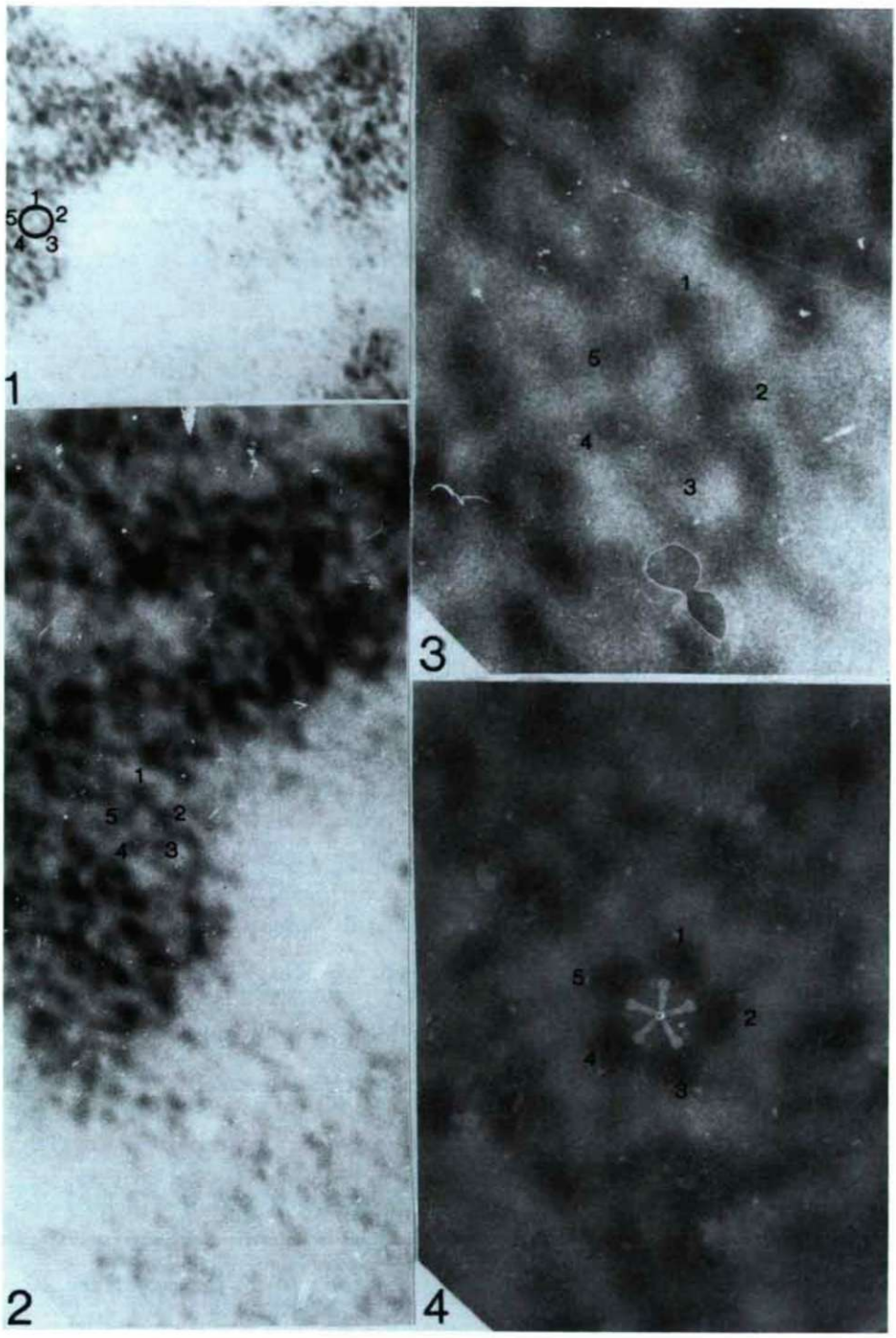
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